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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,181	03/16/2001	Toshiya Satoh	503.39864X00	5733

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EXAMINER

DIAZ, JOSE R

ART UNIT PAPER NUMBER

2815

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/809,181

Applicant(s)

SATO ET AL.

Examiner

José R Díaz

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 28-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

➤ A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 21, 2003 has been entered.

Specification

- The substitute specification filed October 10, 2001 has been entered.

Claim Rejections - 35 USC § 112

- The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

➤ Claims 1 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 5 recite a mean plus function limitation, which is not clear to the examiner. The examiner is not able to identify the step or acts from the description in the specification that clearly link or associate the recited function. For purpose of examination, the means plus function recited in the claimed will be interpreted as merely any step that result in a diced semiconductor structure having a stress cushioning layer, a lead wire portion, a conductive protective layer, and external electrodes.

Furthermore, the term "end face" is indefinite since no structure relationship can be determined between the stress-cushioning layer, lead wire, conductive protective layer, semiconductor elements, semiconductor element protective layer, cutting scribe line and external electrodes. It is not clear whether the term "end face" is used to indicate a top or bottom surface of each layer, e.g. stress-cushioning layer, lead wire, conductive protective layer, semiconductor elements, semiconductor element protective layer, cutting scribe line and external electrodes.

Claim Rejections - 35 USC § 102

➤ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

➤ As far as understood, claims 1-10 and 28-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto Tetsuhiro (JP 10-0928654).

Regarding claims 1, 5 and 33, Yamamoto teaches a semiconductor device comprising: a semiconductor element (12,16) obtained by cutting a semiconductor wafer (18) having and IC (24) and an electrode pad (13) formed on one side along a cutting scribe line (23) (see Figs. 2 and 13); a stress cushioning layer (17) installed on said semiconductor element (12) (see Fig. 2); a lead wire portion (14) extending from said electrode pad (13) to a top of said stress cushioning layer (17) through an opening or second opening (consider the portion(s) above the pad 13 that are filled with wire 14

and protective layer 10) formed in said stress cushioning layer (17) on said electrode pad (13) (see Fig. 2); external electrodes (11) arranged on said lead wire (14) portion on top of said stress cushioning layer (17) (see Fig. 2); and a conductor protective layer (10) installed on said stress cushioning layer (17) excluding said external electrodes (11) arranged on said lead wire portion (14) (see Fig. 2), wherein said stress cushioning layer (17), said lead wire portion (14), said conductor protective layer (10), and said external electrode (11) have *means* for forming each end face on an end surface of said semiconductor elements (12) inside said cutting scribe line (23) and exposing a range from said end face on said end surface of said semiconductor elements to an inside of said cutting scribe line (23), such that said stress cushioning layer, said lead wire portion, said conductive protective layer, and said external electrodes are located inside of a peripheral edge of said semiconductor elements (12) (see Figure 1, 2 and 13). Furthermore, please consider the layer as (16) the semiconductor element protective layer, and consider the recess between portions of the layer (16), which are filled with the pad electrode (13), as the first opening.

Regarding claims 2, 6 and 34, Yamamoto teaches that said end face of said conductor protective layer (10) is formed inside said end face of said stress cushioning layer (17) (consider the non-inclined face of the layer 17 as the "end face" in Fig. 2).

Regarding claims 3, 7 and 35, Yamamoto teaches that said end face of said conductor protective layer (10) is formed outside said end face of said stress cushioning layer (17) (consider the inclined face of the layer 17, near the pad 13, as the "end face" in Fig. 2).

Regarding claims 4, 10 and 36, Yamamoto teaches that an end area of said stress cushioning layer (17) is formed so as to become tapered and thinner toward the end face of the stress-cushioning layer (consider the inclination of the "end face" of the stress cushioning layer that is close to the pad 13) (see Fig. 2).

Regarding claim 8, Yamamoto teaches that said end face of said semiconductor element protective layer (16) is formed outside said end face of said stress cushioning layer (17) (consider the inclined face of the layer 16 that is above portion of the pad 13 and outside of the "end face" of the stress cushioning layer (17) in Fig. 2).

Regarding claim 9, Yamamoto teaches that said end face of said semiconductor element protective layer (16) is formed inside said end face of said stress cushioning layer (17) (consider the non-inclined face of layers 16 and 17 in Fig. 2).

Regarding claims 28-32, Yamamoto teaches that the stress-cushioning layer (17) comprises a pasty polyimide material (see Fig. 2).

Response to Arguments

➤ Applicant's arguments with respect to claims 1-10 and 28-36 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R Díaz whose telephone number is (703) 308-

6078. The examiner can normally be reached on 9:00-5:00 Monday, Tuesday, Thursday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 746-3891 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JRD
June 17, 2003



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800